# Efficacy of Expressive Arts Therapy to enhance Academic Achievement among Learning Disabled Adolescents

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# ABSTRACT

The current study aimed to enhance academic achievement among Learning Disabled Adolescents using Expressive Arts Therapy with Brain Gym technique. The Research Design used was before, after and follow-up with waitlist control group. Raven's Standard Progressive Matrices, Schonell - Graded Reading Test, Schonell - Graded Spelling Test, The Schutte Self Report Emotional Intelligence Test, Social Competence Scale, Moss Attention Rating Scale, Youth Disability Screener, Digit Span Test were administered to the participants. Initially 80 participants underwent IQ test and filtered to 70 participants. Out of 70 participants, 66 became part of the study with 35 participants in experimental group and 31 in waitlist control group. The participants in the experimental group took part in the Expressive Arts Therapy with Brain Gym intervention for 8 weeks. Participants in the waitlist control group were administered to the same intervention after follow-up phase. The results revealed that most of the participants had scored moderate Emotional Intelligence, Social Competence, Attention, Working Memory, Academic Achievement and Quality of Life. There was significant difference between boy and girl learning disabled adolescents in Emotional Intelligence. There is a significant difference in Experimental group and Waitlist control group in Emotional Intelligence, Attention and Quality of Life. Expressive Arts Therapy with Brain Gym technique had been effective in enhancing the Emotional Intelligence, Social Competence, Working Memory, Academic Achievement of the Learning Disabled Adolescents in the Experimental Group. From the study, it is imperative that Expressive Arts Therapy can be included in the curriculum to enhance the Academic Achievement of the Learning Disabled students and recommends inclusive education.



Key Words: Learning Disability, Expressive Arts Therapy, Emotional Intelligence, Social Competence, Academic Achievement

## INTRODUCTION

Learning disability is a challenging term due to the difficulties involved in comprehending academic contents such as reading, writing and mathematics. The psychological processes also includes trouble with perception, memory and expressive language. It is extremely difficult to identify learning disability at birth. Therefore, studying the prevalence and estimation of the number of cases helps us to understand the complexity of learning disability prevailing in the general population (Gates, 2003).

### Prevalence of Learning Disability

There is a 40% increase in learning disability contributing to fastest growing types of disabilities in Canada (*Learning Disabilities Association of Canada,* 2021). National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore share a record of 12% prevalence rate of learning disability between 4 to 16 years (*Learning Disability - Indian Scenario*, 2019). Out of 244 sample, 75% had impaired reading and writing according to the study conducted to Ernakulam, Kerala, by Chacko and Vidhukumar (2020).

### Signs of Learning Disability

According to National Institutes of Health (2021), the signs of learning disability are different for different people. The following are the common signs observed in a child with learning disability: 1) Problems reading and/or writing, (2) Problems with math, (3) Poor memory, (4) Problems paying attention, (5) Trouble following directions, (6) Clumsiness, (7) Trouble telling time, (8) Problems staying organized

### Theory of Mind (ToM) and Learning Disability

Language development depends on pragmatic skills for interpreting and transforming words into thoughts (Şahin et al., 2019). This pragmatic skill enhances social cognition and social intelligence. Cardillo et al. (2017) highlights that children with dyslexia exhibit weak ToM with difficulties in understanding other's feelings, thoughts and intentions. Language expressions relies on executive functioning and ToM, which are interdependent in forming mental representations for self-observation and control skills (Şahin et al., 2019). Intervention strategies to enhance executive functions and social skills will improve academic achievement (Kloo and Perner, 2008).

### Role of Parenting in Learning Disability

Learning Disability is a broad disorder and could be confusing for a parent to understand and differentiate a healthy, active toddler from a learning disabled one. Hence, a parent with learning disabled child must be able to analyze the different dimensions, think carefully, solve a problem relevant to the strength and weakness of the child (Smith, 2021).

**Role of Schools**

Teacher's lack of knowledge over learning disability is a major barrier towards the provision of higher education to these students. It is the role of the school counsellor to explain the nature of the disability to parents and refer for remedial education. School Principal and Management also a play a major role in the life of a student with learning disability (Karande et al., 2011).

**Psychosocial Issues in Learning Disability**

Tucker et al. (2013) opines through their study that a stigmatized individual internalizes perceived prejudice and develops negative feelings about themselves. This causes the child to feel shame regarding the disability.

**NEED FOR THE STUDY**

The study envisions to address 6 P's of change in a child with learning disability. They are: Progress, Passion, Purpose, Persistence, Pragmatism and Perspective, which can be explained as, "progress in the growth of the children with learning disability by promoting passion in the children to learn with a purpose and persistence that defines the perspective of growth to lead a pragmatic life. The study emphasizes assessing students with learning disabilities, understanding transition impacts, parental roles, higher education needs, and ensuring social security. These efforts collectively aim to foster holistic growth, enabling students with LD to experience learning and development similar to their peers.

The study will focus to help a student with LD - to enhance the academic skills, social skills, quality of life, parent-child relationship regarding transition plan, to provide guidance on the government provisions and relaxations available for higher education for the students with LD and enumerate on the significance of inclusive education. By providing the above holistic approach, the student with LD, parents and teachers will be equipped to face the society courageously. Overall, the study aims to meet the sustainable goals provided by the UN stating that "development that meets the needs of the present without compromising the ability of the future generations to meet their own needs".

## REVIEW OF LITERATURE

### Adolescents and Learning Disability

According to Onofri et al. (2021), among 193 students in the age group of 8 to 18 years, 9.44% of the adolescent population were identified to have learning disability.

### Executive functions and Learning Disability

Various studies have shared evidences that there is a significant difference in cognitive flexibility, planning and selective attention between learning disabled students and normal students **(**Amani et al. (2018) & Fadaei et al. (2017)). Gray et al. (2019) posits that children with learning disability have working memory deficits and are not used as a part of learning disability diagnosis. Kizilaslan and Tunagür (2021) shares the characteristics of a child with learning disability and its association with poor working memory.

### Social Skills and Learning Disability

Tilly (2019) shares the information that people with learning disability faces social exclusion and that they have the full right to be the members of our community.

### Role of Emotional Intelligence

Students with learning disability are challenged with cognitive skills and hence the question of associated emotional intelligence in learning disability is raised in the study Zysberg and Kasler (2017).

### Expressive Arts Therapy as an Intervention

Lusebrink's (2004) investigated the effectiveness of expressive arts therapy on cognitive functions. It found that this therapy stimulates emotional responses, aids in memory formation, and processes motor, visual, and somatosensory information. According to Sutherland et al. (2010), expressive arts therapy serves as an intervention to improve group identity, cohesion, and cooperation and the program improved mental health, a sense of belonging, and increased trust within their groups (students from grades 3 to 12).

## OBJECTIVES

- To identify gender difference in emotional intelligence, social competence, working memory, attention and academic achievement among learning disabled adolescents.
- To measure the relationship between emotional intelligence, social competence, working memory, attention and quality of life among learning disabled adolescents.
- To enhance the emotional intelligence, social competence, working memory, attention, quality of life and academic achievement of the learning disabled adolescents through an intervention programme based on psychotherapy

## 2. Research Hypotheses

The following research hypotheses would be tested during the research:

H1, “There will be a significant difference among Boy and Girl Learning Disabled Adolescents in Emotional Intelligence”

H2, “There will be a significant difference among Boy and Girl Learning Disabled Adolescents in Social Competence”

H3, “There will be a significant difference among Boy and Girl Learning Disabled Adolescents in Working Memory”

H4, “There will be a significant difference among Boy and Girl Learning Disabled Adolescents in Attention”

H5, “There will be a significant difference among Boy and Girl Learning Disabled Adolescents in Academic Achievement”

H6, “There will be a significant difference among Boy and Girl Learning Disabled Adolescents in Quality of Life”

H7, “There will be a significant relationship between Emotional Intelligence and Social Competence among the Learning Disabled Adolescents”

H8, “There will be a significant relationship between Emotional Intelligence and Working Memory of the Learning Disabled Adolescents”

H9, “There will be a significant relationship between Emotional Intelligence and Attention among Learning Disabled Adolescents”

H10, “There will be a significant relationship between Emotional Intelligence and Academic Achievement among Learning Disabled Adolescents”

H11, “There will be a significant relationship between Emotional Intelligence and Quality of Life among Learning Disabled Adolescents”

H12, “There will be a significant relationship between Social Competence and Working Memory among Learning Disabled Adolescents”

H13, “There will be a significant relationship between Social Competence and Attention among Learning Disabled Adolescents”

H14, “There will be a significant relationship between Social Competence and Academic Achievement among Learning Disabled Adolescents”

H15, “There will be a significant relationship between Social Competence and Quality of Life among Learning Disabled Adolescents”

H16, “There will be a significant relationship between Working Memory and Attention of the Learning Disabled Adolescents”

H17, “There will be a significant relationship between Working Memory and Academic

Achievement among Learning Disabled Adolescents”

H18, “There will be a significant relationship between Working Memory and Quality of Life among Learning Disabled Adolescents”

H19, “There will be a significant relationship between Attention and Academic Achievement among Learning Disabled Adolescents”

H20, “There will be a significant relationship between Attention and Quality of Life among Learning Disabled Adolescents”

H21, “There will be a significant relationship between Academic Achievement and Quality of Life among Learning Disabled Adolescents”

H22, “There will be significant difference between Experimental Group and Waitlist Control Group in Emotional Intelligence among Learning Disabled Adolescents”

H23, “There will be significant difference between Experimental Group and Waitlist Control Group in Social Competence among Learning Disabled Adolescents”

H24, “There will be significant difference between Experimental Group and Waitlist Control Group in Attention among Learning Disabled Adolescents”

H25, “There will be significant difference between Experimental Group and Waitlist Control Group in Working Memory among Learning Disabled Adolescents”

H26, “There will be significant difference between Experimental Group and Waitlist Control Group in Academic Achievement among Learning Disabled Adolescents”

H27, “There will be significant difference between Experimental Group and Waitlist Control Group in Quality of Life among Learning Disabled Adolescents”

H28, “There will be significant difference during before, after and follow-up phases in emotional intelligence among learning disabled adolescents”

H29, “There will be significant difference during before, after and follow-up phases in social competence among learning disabled adolescents”

H30, “There will be significant difference during before, after and follow-up phases in attention among learning disabled adolescents”

H31, “There will be significant difference during before, after and follow-up phases in working memory among learning disabled adolescents”

H32, “There will be significant difference during before, after and follow-up phases in academic achievement among learning disabled adolescents”

H33, “There will be significant difference during before, after and follow-up phases in quality of life among learning disabled adolescents”

**Population and Sampling Frame**

**Location of the Study**

Wisdomms Special School and Learning Centre, Chennai and Saraswathi Kendra Learning Centre for Children, Chennai were selected for the study. The reasons for selecting these centers are as follows - Availability of the participants, National Institute of Open School (NIOS) based curriculum and permission provided by the school authorities.

**Sampling Procedure**

Purposive sampling procedure was followed. The sample included 80 learning disabled adolescents (Dyslexia) aged between 11 years to 16 years. The learning disabled adolescents (N=80) were screened and diagnosed for intelligence, reading score and writing score to identify dyslexic adolescents. In the experimental group, there were 22 boys and 13 girls. In waitlist control group, there were 14 boys and 17 girls.

**Inclusion criteria**

* Adolescents with dyslexia only
* Adolescents in the age group between 11 to 16 years
* Adolescents with poor memory and attention
* Adolescents with average emotional intelligence and social competency skills

**Exclusion Criteria**

* Adolescents with intellectual disorder
* Adolescents with psychological disorder
* Adolescents with high academic achievement
* Adolescents with Attention Deficit Hyperactivity Disorder (ADHD)

**Research Design**

Before, After and Follow-up with Waitlist Control Group Design was used for the purpose of research. In a waitlist control group design, the intervention will be administered to experimental group and the waitlist control group will be under waiting list and will receive the intervention after experimental group (Schimelpfening, 2021). The primary data for the study was collected using questionnaires and the study was carried out in 4 stages.

Stage I: From Wisdomms Special School and Learning Centre, Chennai and Saraswathi Kendra Learning Centre for Children, Chennai, 80 learning disabled adolescents were selected. The learning disabled adolescents were diagnosed for dyslexia using Raven's Standard Progressive Test, Schonell - Graded Reading Test and Schonell - Graded Spelling Test. After considering factors like moderate intelligence quotient (IQ) and low reading score, 70 learning disabled adolescents were included in the study. All the 70 students were assessed

using a Case Study Schedule, The Schutte Self Report Emotional Intelligence Test (SSEIT), Social Competence Scale (SCS), Moss Attention Rating Scale (MARS), Youth Disability Screener and Digit Span Test.

Stage II: After assessments, the learning disabled adolescents were divided into 2 groups – 35 adolescents from Saraswathi Kendra Learning Centre for Children, Chennai (Experimental Group) and 31 adolescents from Wisdomms Special School and Learning Centre, Chennai (Waitlist Control Group). The experimental group received the intervention for 8 weeks (20 sessions) whereas the waitlist control group were kept waiting and they participated in the intervention at the end of follow-up phase. The therapy was administered to the Experimental group on every Monday, Wednesday and Friday for an hour for 8 weeks (20 sessions). And to the waitlist control group, the therapy was administered at the end for 1 month on every Tuesday, Thursday and Saturday for an hour.

Stage III: In this stage, the learning disabled adolescents were reassessed to measure the effectiveness of the intervention by administering the psychological tests used initially in stage II.

Stage IV: Here, the participants were measured using the same psychological tests used in Stage II. This follow-up phase followed after a month gap from the completion of intervention.

**Tools Used**

The tools used in the study were - 1. Case Study Schedule, 2. Raven's Standard Progressive Matrices by (Raven, 1938), 3. Schonell: Graded Reading Test by , 4. Schonell: Graded Spelling Test by F.J. Schonell, 5. The Schutte Self Report Emotional Intelligence Test (SSEIT) by (Schutte S et al., 1998) , 6. Social Competence Scale (SCS) by (Agarwal & Vashistha, 2016), 7. Moss Attention Rating Scale (MARS) by (Whyte et al., 2008), 8. Youth Disability Screener (YDS) by (Topolski et al., 2002) and 9. Digit Span Test – Subscale of Malin's Intelligence Scale for Indian Children by (Malin, 1968).

**Expressive Arts Therapy with Brain Gym**

Expressive Arts Therapy with Brain Gym incorporates techniques such as painting, movement, dance, music, and writing, allowing participants to express their emotions and reactions through visual art, physical movements, letters, and sounds. The therapy emphasizes living in the present moment and aims to support children dealing with ADHD, developmental disabilities, stress, anxiety, and depression, fostering positive change. This approach also enhances social skills (Cherry, 2021). In the current study, painting, writing, music, and brain gym exercises were used. The specific therapy package used in this study

was developed by (Sivewright, 2021).

**STATISTICAL ANALYSIS:**

Statistical Package for Social Science (SPSS), version 25 was used to calculate descriptive and inferential statistics such as mean, standard deviation, one-way ANOVA, coefficient of correlation and repeated measures of ANOVA.

**RESULTS:**

Percentage analysis of the Demographic Data shows that 55% participants were boys, 24% were 14 years old, 41% were enrolled in Pre-Secondary class, 64% were from urban area, 56% belonged to joint family, 39% had a reading age of 7 years and 27% had a spelling age of 6 years.

Descriptive Statistics for gender difference in the variable Emotional Intelligence, Social Competence, Working Memory, Attention, Academic Achievement and Quality of Life shows a mean difference in Emotional Intelligence between Boy (M = 124.83, SD = 14.45) and Girl (M=116.03, SD = 19.30) learning disabled adolescents.

There was a homogeneity of variances between groups, as assessed by Levene's test for equality of variances ($p>0.05$) in Emotional Intelligence, Social Competence, Working Memory and Attention. Welch-Satterthwaite test was used to adjust the df value for unequal variances of Academic Achievement and Quality of Life and the results doesn't provide strong evidence for heterogeneity.

Inferential Statistics of Coefficient of Correlation to find out the relation between the variables- Emotional Intelligence with Social Competence, Attention, Working Memory, Academic Achievement and Quality of Life (r=-.204, p = .100; r=.198, p = .110; r=.163, p =.190, r = -.135, p=.279 and r=.242, p=.051 respectively); Social Competence with Attention, Working Memory, Academic Achievement and Quality of Life (r=.079, p = .529; r=-.199, p=.109; r= .145, p = .245 and r=.041, p=.743); Attention with Working Memory, Academic Achievement and Quality of Life (r=.013, p=.915; r=.148, p =.236 and r=.052, p = .680); Working Memory with Academic Achievement and Quality of Life (r=.191, p=.125; r=.182, p=.144) and Academic Achievement with Quality of Life (r=.056, p=.655) shows that there is no significant relationship between the variables and suggests the absence of multicollinearity among the variables. This recommends to compute higher level statistical analysis using these variables.

ANOVA statistics for Experimental group and Waitlist Control group in Emotional Intelligence ($F(1, 64) = 8.74$, $p= 0.004$), Social Competence ($F(1, 64) = .007$, $p=.932$), Working Memory ($F(1, 64) = 3.448$, $p=.068$), Attention ($F(1,64)=4.761$, $p=.033$), Academic

Achievement ($F(1,64) = 0.579$, $p=0.449$) and Quality of Life ($F(1,64)=8.983$, $p=.004$) shows that there is significant relationship between Experimental Group and Waitlist Control Group in Emotional Intelligence, Attention and Quality of Life.

Repeated Measures of ANOVA, Post-hoc Pair wise comparison Before, After and Follow-up Phases to find out the efficacy of Expressive Arts Therapy with Brain Gym in Emotional Intelligence ($F(2, 130) = 5.88$, $p<0.01$), Social Competence ($F(2, 130)=1.20$, $p <0.01$), Attention ($F(2, 130) = 1.20$, $p = .306$), Working Memory ($F(2,130) = 9.74$, $p<0.01$), Academic Achievement ($F(2,130) = 9.99$, $p <0.01$) and Quality of Life ($F(1.516, 2) = 1.69$, $p =.188$) shows a significant difference during before, after and follow-up phases in Emotional Intelligence, Social Competence, Working Memory and Academic Achievement among Learning Disabled Adolescents and Expressive Arts Therapy with Brain Gym had been effective in enhancing Emotional Intelligence, Social Competence, Working Memory and Academic Achievement in Experimental group.

**CONCLUSION**

1. The participants were found to be homogenous.
2. There was significant difference in Emotional Intelligence among boy and girl learning disabled adolescents.
3. There was no multicollinearity between the variables
4. Before intervention, most of the participants scored moderate Emotional Intelligence, Social Competence, Attention, Working Memory, Academic Achievement and Quality of Life
5. Expressive Arts Therapy was effective in enhancing the Emotional Intelligence, Social Competence, Working Memory, Academic Achievement among the Learning Disabled Adolescents

**IMPLICATIONS**

1. Schools can incorporate Expressive Arts Therapy with Brain Gym into their curriculum to help adolescents with learning disabilities gain greater independence.
2. The study aligns with United Nations Sustainable Development Goals -Goal 3 (Good health and well-being) and Goal 4 (Quality education). Therefore, this intervention can serve as a model for promoting mental health services to improve access to compulsory primary education for all adolescents with learning disabilities.
3. It is essential for every school to assess the reading and writing abilities of all students using intelligence tests, as well as reading and writing assessments, to identify those with learning disabilities.

4. Teachers can develop specialized pedagogical approaches and teaching methods tailored for students with learning disabilities, taking into account their IQ scores, as well as their reading and writing abilities.

5. Policymakers should update existing policies to prioritize the quality of life of adolescents with learning disabilities, emphasizing inclusivity based on tacit knowledge (subjective knowledge) rather than solely focusing on academic performance (objective knowledge)

**RECOMMENDATIONS**

1. Expansion of NIOS syllabus and increased higher education reservations are needed for students with learning disabilities in India to promote inclusivity and support this marginalized group further.

2. The Right to Education Act of 2009 should be updated to consider both physical and mental age disparities among learning disabled adolescents, ensuring educational access and eligibility for primary education.

3. Schools should mandate inclusivity and empower parents of learning disabled students to serve as shadow teachers, fostering awareness and creating a supportive ecosystem for these students.

**LIMITATIONS**

1. The study faced limitations due to extraneous variables, such as exposure to yoga among learning disabled adolescents in the intervention group, making generalization of findings challenging.

2. The teacher-rated questionnaire used to assess attention may have introduced bias, limiting the generalizability of the study's findings.

3. Academic achievement scores were based on term examination marks, influenced by varying teaching methodologies among different teachers, thus complicating generalization of results.

4. The quality of life questionnaire provided insight into the presence of learning disabilities but did not assess physical, psychological, or emotional well-being, affecting the generalizability of findings.

5. The study's use of the digit span method from the WISC Intelligence test to assess working memory focused solely on short-term auditory memory, potentially limiting the generalizability of its findings.

**SUGGESTIONS FOR FUTURE RESEARCH**

Future study must aim to minimize the effect of extraneous variables, remove subjective bias, design robust measuring methods and consider the existence of various

factors for a particular variable.

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